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REPORT ON INSECT INFESTATION IN THE POWELL AND DIXIE SEVIER NATIONAL FORESTS

By
W. D. Edmonston,
Specialist in Forest Entomology.

Under instructions from Dr. A. D. Hopkins, Forest Entomologist, and at the request of the District Forester of District 4, the writer made this examination.

During this work the writer was accompanied by Mr. C. B. Morse, Assistant District Forester in charge of Silviculture, Forest Supervisor Wm. M. Mace, and Rangers Seaman, Dodge and Heywood. Examination covered the period from September 4 to 7.

Powell-Sevier

This forest lies east of the Sevier River and the Dixie-Sevier, west. Yellow pine predominates between elevations of 7,000 to 8,500 feet. Above that and easterly on the Powell, Engelman spruce in extensive bodies occupies the highest elevations; this could only be seen from a considerable distance. The pine is in most cases in pure stands; when in mixture the type consist of Colorado blue spruce, limber pine and bristle cone pine.

The areas of heaviest infestation are confined to the pure stands of yellow pine (Pinus ponderosa). It is the very best timber that is being attacked and killed; this is a point

which should not be overlooked. On areas where it would seem reasonable to expect to find the beginning of an infestation which could have built up and increased, gaining strength to pass on and enter the healthy bodies of pure pine, the infestation is endemic; on such areas the timber is poor stock. It is on dry, rocky, wind-swept ground frequently subject to lightning strokes and barely holding its own. Unfortunately the infestation is exceedingly light on these exposed situations. True, many trees have been killed, but it has taken many years to accomplish in this type of outlying forest what a very few years in the very best and vigorous pure stands have to show. Here the insects have literally started to gut the stand, they are not confined to any one area but are thoroughly established and so distributed throughout in clumps that it will be a serious problem to stamp them out.

The Black Hills beetle (Dendroctonus ponderosae Hopk.), is primary in its attack on this forest. D. convexifrons Hopk., D. approximatus D., D. barberi Hopk., given in the order of their importance are following up the initial attack of the Black Hills beetle, but at present are confined to the basal five or six feet of the main trunk.

On the East Fork of the Sevier river there is an excellent and continuous body of pine which covers the low hills and plateaus on both sides of the river. From Dave's Hollow southwesterly to the forest boundary clumps of red tops are numerous. Clumps of from six to forty trees were observed. The number of trees infested in 1920 in this tract of pine, about four by twelve miles, most of which

could be viewed from points of vantage, will easily exceed 3,500 trees.

An examination was made at one point a few miles south of the Tropic Reservoir. A clump of 16 red tops, 1920 infestation, was recorded and within 200 yards one clump of eighteen freshly infested trees was noted, and close by a clump of six and one of eight trees. The altitude here would be about 8,200. Judging from the length of the egg galleries, the fresh attacks were made about August 20. The galleries are from one to five and a half inches in length; eggs were noted but no young larvae. In many cases the parent adults were just entering the bark; most likely the broods were further advanced at points midway on the main trunk. Sawdust was being ejected, showing grooving of the inner bark; it is not at all likely that any attack occurred prior to August 5. Looking easterly from a point near Dave's Hollow a large body of pine on the Powell could be plainly seen. No red top trees were observed in this belt of pine. It should, however, be examined as it can not be over eight miles distant from areas of infestation.

I am not prepared to recommend the expenditure of any money in direct control on the Powell-Sevier until the Forest officers have first made every effort to have one or more saw-mills established on the areas of heaviest infestation. This would be much the better method as it would result in salvaging the beetle abandoned and red top trees of 1920 together with the newly infested trees. If this cannot be done within a reasonable time, then a thorough examination should be made for the purpose of locating the chief centers of infestation and accruate figures secured of the number of trees it will be necessary to treat.

Dixie-Sevier

The Black Hills beetle is primary in its attack in the pure yellow pine in this forest. The infestation covers an area of approximately eight by eighteen miles from Panguitch Lake south to the Forest boundary. The heaviest infestation, or that of 1920, is on Mammoth Creek. The east side of this area shows less infestation than the main central portion, neither is it as heavy to the north or south. There is evidence of old infestation of a scattering nature which the infestation of the past three seasons is now overlapping. This older infestation dates back at least fifteen years, but should not be confused with the new which is of recent origin, four to five years and is thoroughly epidemic in character. Clumps of red top trees were noted, from sixteen to 250 trees in a clump. Many clumps of forty trees were common. It is all merchantable stock and the very best type of yellow pine indigenous to this locality. If milling operations could be applied to this belt of pine timber it would be the most practicable way to clean up the Forest and eventually control the infestation. As it stands now it would be a very expensive undertaking. Much of the territory is inaccessible except with pack outfits. There are roads of a kind, but many of them are impassable. There are three good sawmill locations on the area and if the dead and infested timber is to be removed from the forest it should be given free of charge which might induce owners of mills to undertake logging operations on the infested areas. The 1921 infestation has every evidence of being quite as severe as that of 1920.

The areas of heaviest 1920 infestation on Mammoth Creek cover about 7,000 acres. At least 800,000 ft. B. M. has been

killed during the past four seasons. On the higher reaches and tributaries of Mammoth the infestation has spent itself, only a few scattering clumps of red tops were observed; the new infestation is following the contours of 8,500 and descending rapidly.

Judging from the 1920 infestation and the location of the clumps, much of the 1921 infestation will be found a few hundred feet lower, while some broods will remain to infest trees in close proximity to clumps from which the emergence occurred in August. A very large per cent will move down the slopes south and east. Two seasons more of infestation at present rate of progress will easily account for from ten to twenty per cent of the yellow pine stand on all pine areas on the east slope of this forest. As it stands now visible to the observer from five to twelve per cent has been killed. On the areas viewed 4,500 merchantable trees were infested in 1920, about 1,000,000 ft. B.M. The new or 1921 infestation will not be less than 6,000 trees and it might easily reach 10,000 trees.

It is plain that it either means action in the immediate future which will reduce the infestation by centering milling operations in the heart of the infestation or direct control work cutting and barking the trees. This would cost at least $6,000.00 and if it had to be carried on during two seasons which it most likely would, the total cost might reach $8,000.00.

At the present rate of increase over a period of three years, 1918 to 1920, it will only be a matter of five or six

years before half the pine timber on this forest will be insect killed.

Further examination of the area will be necessary before accurate figures can be secured. The writer would like to know what the possibilities are for the location of sawmills on this area before May 15, 1922, as much will depend upon this whether or not direct control measures should be instituted.

Dated at Kanab, Utah,
September 12, 1921.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
WASHINGTON

OCT 2 1921
Field to Silviculture

ADDRESS REPLY TO
THE FORESTER
AND REFER TO

S
Insect Control, D-4, Dixie-Sevier.

September 27, 1921.

District Forester,

Ogden, Utah.

Dear Sir:

I enclose copies of Dr. Howard's letter of September 22 and of Mr. Edmonston's report. Mr. Edmonston's recommendations appear to be that every effort be made to check the infestations through the logging of the infested timber and it is not clear whether he urges the installation of an insect control project in the spring of 1922, if it proves impossible to secure the installation of sawmills.

This infestation was discussed with Mr. Morse in late August while I was in Ogden, and I realize that he is anxious to do everything possible to secure the installation of sawmills, the logging of the dead and infested timber and the checking of the infestation by this means. The administrative use procedure could undoubtedly be used, if necessary, as Mr. Edmonston suggests, but, of course, some stumpage should be secured if it is possible to do so and still get the infested timber removed. I am asking Mr. Preston, who is leaving Washington for your District at once, to go into this subject fully with you, and believe that it would be advisable for him to see the problem on the ground if it is possible to do so.

Very truly yours,

E. E. Carter

Assistant Forester.

Enclosures.

Copy sent Supervisor.

8 September 27, 1921.
Insect Control, D-4, Dixie-Sevier.

Chief,
Bureau of Entomology,
Washington, D. C.

Dear Doctor Howard:

I am very glad to have your letter of September 22, with the accompanying copy of Mr. Edmonston's report on the insect infestation in the Powell and Dixie-Sevier National Forests. Copies are being sent to the District Forester at Ogden, with whom originated the request that Mr. Edmonston make this examination. The District Forester fully appreciates the importance of securing the logging and milling of as much of the infested timber as is possible, but, as Mr. Edmonston reports, roads on which the lumber could be transported to market are lacking for much of the infestation unit. I shall hope to write you later in regard to exactly what can be done in the way of making sales in this timber.

Very sincerely yours,

L. Shorey

Acting Forester.

Copy sent Supervisor.

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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY
WASHINGTON

September 22, 1921.

The Forester,

Forest Service.

Dear Sir:

Enclosed you will find a copy of a report by Mr. W. D. Edmonston of this Bureau on Insect Infestation in the Powell and Dixie Sevier National Forests. We would be interested to learn of the probable action that may be taken on Mr. Edmonston's recommendation which is approved by Dr. Hopkins,

Very truly yours,

L. O. HOWARD

Chief of Bureau.

Copy sent Supervisor